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MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			EXAMINER WALCK, BRIAN D	
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			1793	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/566,596

## Applicant(s)

JARVINEN ET AL.

## Examiner

Brian Walck

## Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10-16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,10-16 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 3, 9, and 17 are canceled. Claim 18 is newly added. Claims 1-2, 4-8, 10-16, and 18 are pending where claims 1, 2, 5-7, 10, and 12-15 have been amended.

### ***Status of Previous Rejections***

2. The previous 35 USC § 112 rejections of the claims have been withdrawn in view of amendments to the claims.
3. The previous 35 USC § 103 rejections of the claims have been maintained.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**7. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 3,819,020(DE'020), further in view of Gonzalez Dominguez et al. US 5,833,830 (Gonzalez Dominguez), and further in view of Rantapuska et al. US 4,917,775 (Rantapuska), and in view of applicant's admitted prior art, and further in view of Haanstra et al. US 6,606,901 B1(Haanstra).**

Regarding claim 1, DE'020 teaches a process for removing impurities in a zinc preparation process (title), comprising a step Co removal is performed in one or more reactors (page 2 of the machine translation, 3rd paragraph). DE'020 further teaches that measurements of redox potential are made and the results are used to adjust and optimize the feeding of zinc powder (abstract, page 1 of the machine translation, 1st paragraph, page 4 of the machine translation, 5th paragraph). The redox potential measurement device as taught by DE'020 comprises a platinum electrode and a reference electrode(page 4 of the machine translation, 9th paragraph).

However, DE'020 does not teach that measurement of the redox potential is done outside the reactor and the redox potential measurement device is cleaned periodically. DE'020 also does not explicitly teach the claimed measurement of acidity and/or basicity determined by BT value measurement.

Gonzales Dominguez teaches optimizing process variables of a zinc electrowinning cell by monitoring the redox potential of the electrolyte of a spent electrolyte overflow stream (abstract, col. 2 lines 46-48, col. 3 lines 40-42), which implies that the redox potential is measured outside of a reactor.

In light of the teachings of Gonzales Dominguez, one of ordinary skill in the art would have found it obvious to have performed measurements of the redox potential of the solution in each of the three metal removal steps of DE'020 outside of the reactor with expected success.

Rantapuska also teaches measuring of redox potential in a metal recovery process (title, abstract). Rantapuska further teaches that the surface of the measuring electrode can be cleaned to prevent formation of harmful coating layer (col. 3 lines 8-10).

Therefore, it would have been obvious to one of ordinary skill in the art to have periodically cleaned the electrodes of the redox potential measurement device as taught by Rantapuska into the process of DE'020 in view of Gonzales Dominguez in order to prevent formation of harmful coating layer as taught by Rantapuska.

As admitted by the applicant on page 2, lines 7-12 of the instant specification, it is known to measure not only the redox potential but also the pH values inside a reactor and use the results of these measurements to adjust process variable such as zinc consumption.

Therefore, one of ordinary skill in the art would have found obvious to have incorporated pH measurement as admitted by the applicant into each of the metal

removing steps of DE'020 in view of Gonzalez Dominguez and Rantapuska in order to optimize process variables such as zinc consumption.

Haanstra teaches that the acidity of a solution can be measured by using a titration method or a pH measurement and the titration method produces more accurate acidity measurements than pH measurement(col. 1 lines 34-40).

Therefore, it would have been obvious to one of ordinary skill in the art to have substituted the pH measurement in the process of DE'020 in view of Gonzalez Dominguez, Rantapuska, and admitted prior art with a titration method as suggested by Haanstra, which includes the claimed measurement of acidity by means of BT value, in order to achieve more accurate determination of solution acidity as taught by Haanstra.

Regarding claims 4, the process of DE'020 in view of Gonzalez Dominguez, Rantapuska, admitted prior art and Haanstra teaches the claimed adjustment of process variables based on the results from redox potential and acidity measurements.

Regarding claim 5, the three metal removing steps as taught by DE'020 reads on the claimed at least two reactors connected in series for metal removal as claimed.

Regarding claims 6-7, the process of DE'020 in view of Gonzalez Dominguez, Rantapuska, admitted prior art and Haanstra includes a redox potential measurement device positioned in the outlet pipe of a reactor, and an acidity measurement device inside a reactor as claimed.

Regarding claim 8, DE'020 teaches using a measurement electrode for measuring the redox potential as claimed.

Regarding claim 10 and 18, it would have been obvious to one of ordinary skill in the art to have periodically cleaned the electrodes of the redox potential measurement device as taught by Rantapuska into the process of DE'020 in view of Gonzales Dominguez in order to prevent formation of harmful coating layer as taught by Rantapuska. Although Rantapuska does not teach the instantly claimed interval of 1-2 hours, "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). See MPEP 2144.05 [R-5]. In the instant case, it would require little more than routine experimentation by one of ordinary skill in the art to determine the optimal or workable ranges of washing interval of the electrodes.

Regarding claim 11, since redox potential and acidity are measured in each of the three metal removal steps as taught by DE'020 in view of Gonzalez Dominguez, Rantapuska, admitted prior art and Haanstra, the examiner concludes that the process variables for each of the reactors in the process of DE'020 in view of Gonzalez Dominguez, Rantapuska, admitted prior art and Haanstra can be controlled separately.

Regarding claims 12-16, since the process of DE'020 in view of Gonzalez Dominguez, Rantapuska, admitted prior art and Haanstra comprises the same process steps as claimed and utilizes the same concept of optimization and manipulation of process variables such as zinc consumption using the measurement results from redox potential and acidity, the examiner concludes that the claimed zinc powder feeding device, redox potential and acidity measurement devices, adjustment device and control

device are present the process of DE'020 in view of Gonzalez Dominguez, Rantapuska, admitted prior art and Haanstra in order to perform the intended process variable control and metal impurities removal.

### ***Response to Arguments***

8. Applicant's arguments filed 10/19/2009 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Walck whose telephone number is (571)270-5905. The examiner can normally be reached on Monday-Friday 9 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian Walck/  
Examiner, Art Unit 1793  
/Scott Kastler/  
Primary Examiner, Art Unit 1793